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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,058	04/30/2001	Jay K.. Bass	10004190-1	4485

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EXAMINER

EPPERSON, JON D

ART UNIT PAPER NUMBER

1639

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/846,058

Applicant(s)

BASS ET AL.

Examiner

Jon D Epperson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 10-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Status of the Application

1. The Response filed October 15, 2003 is acknowledged.

Status of the Claims

2. Claims 1-26 were pending. Applicants amended claims 1-4. Therefore, claims 1-26 are currently pending.
3. Claims 10-26 are drawn to non-elected species and thus these claims remain withdrawn from further consideration by the examiner, 37 CFR 1.142(b), there being no allowable generic claim.
4. Therefore, claims 1-9 are examined on the merits in this action.

Withdrawn Objections/Rejections

5. All outstanding objections and/or rejections are withdrawn in view of Applicants' amendments and/or arguments.

New Rejections

Claims Rejections - 35 U.S.C. 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. **Claims 1, 6, 7, 8** recite the limitation "the substrate". There is insufficient antecedent basis for this limitation in the claim. Therefore, claims 1, 6, 7 and all dependent claims are rejected under 35 USC 112, second paragraph.

B. **Claim 1** recites the limitation "the chemical moieties" in the first line of step (b). There is insufficient antecedent basis for this limitation in the claim. Therefore, claim 1 and all dependent claims are rejected under 35 USC 112, second paragraph.

C. **Claim 5** recites the limitation "the array and associated identification" in the first two lines. There is insufficient antecedent basis for this limitation in the claim. Therefore, claim 5 and all dependent claims are rejected under 35 USC 112, second paragraph.

D. For **claim 5**, the term "forwarding the array and associated identification to a remote location" is vague and indefinite. For example, it is not clear whether the array is physically be forwarded i.e., shipped or sold to a remote location (i.e., the remote location is a store or a house) or is being stored in a database (i.e., the remote location is a computer)? In addition, it is not clear what exactly is being forwarded, virtual information or the physical substrate? Applicants are requested to clarify. Therefore, claims 5 and all dependent claims are rejected under 35 U.S.C. 112, second paragraph.

E. For **claim 8**, the phrase “the first and second directions extend perpendicularly between respective sets of opposite edges of the substrate” is vague and indefinite. For example, it is whether the first and second direction extend perpendicularly to the line that forms an equilateral triangle with the first and second edges i.e., the line that connects the two edges or whether each direction corresponds to each edge (and if so which edge)? Applicants are requested to clarify. Therefore, claims 8 and all dependent claims are rejected under 35 U.S.C. 112, second paragraph.

Claims Rejections - 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Indermuhle et al (US Patent Application Publication 2001/0036674 A1) (Filed on **February 23, 2001**).

For **claims 1, 8-9**, Indermuhle et al (see entire document) disclose methods for making and using “pillar” biochips including the use of “elongated” pillars (see Indermuhle et al, abstract; see also figures 24-25), which anticipates claim 1. For example, Indermuhle et al disclose determining the identity of a first direction across the

substrate surface along which the substrate surface has a higher height uniformity than along a second direction across the substrate (e.g., see Indermuhle et al, figure 24). In this scenario, the “first direction” corresponds to the direction along the surface of the substrate that is parallel to the “elongated” side of the pillars (i.e., the longer side of element 132). For the first direction the height is relatively uniform because the tops of the pillars are flat. By comparison, the direction along the surface of the chip that is perpendicular to the elongated sides of the pillars i.e., the “second direction” would have “lower” height uniformity because it would cross over elongated pillars, the intervening troughs or spaces between the pillars and the channel defining walls (i.e., element 135), which are all of different heights. In addition, Indermuhle et al disclose placing chemical moieties on the substrate so as to provide features thereon along rows more closely aligned with the first direction than the second direction (e.g., see Indermuhle et al, figure 24, wherein element 133 is used to “dispense” chemical on the top of the elongated pillars that are parallel i.e., closely aligned to the first direction; see also page 2, column 2, paragraph 44 which discloses numerous chemical moieties that can be deposited on the pillar e.g., antibody/antigen, enzyme/substrate, etc.). Finally, Indermuhle et al disclose the fabrication of an array of multiple features of different chemical moieties on the substrate surface (e.g., see Indermuhle et al, figure 24 disclosing the array of pillars on the surface wherein various chemicals are spotted on said surface; see also page 2, column 2, paragraph 44; see also figures 2-4; see also page 3, column 2, paragraph 55). Also note that the “first” and “second” directions are perpendicular to the edges of the substrate.

For *claim 2*, Indermuhle et al disclose biopolymers in including proteins, DNA and carbohydrates (e.g., see Indermuhle et al, page 2, column 2, paragraph 44).

For *claim 3*, Indermuhle et al disclose measuring the thickness of the substrate at different positions (e.g., see Indermuhle et al, figure 24 wherein the thickness of the substrate is measured at each element 132 in order to fit this protrusion within the dispenser at each element 133).

For *claim 4*, Indermuhle et al disclose receiving a substrate from a remote location (e.g., see Indermuhle et al, figure 24, elements 130 and 133 wherein dispenser 133 is the remote location). Indermuhle et al further disclose receiving from a remote location in association with the substrate, an identification of a first direction across the substrate surface along which the substrate surface has a higher height uniformity than along a second direction across the substrate (e.g., see Indermuhle et al, figure 24 wherein element 132 fits into or is “identified” by element 133 at each position on the substrate). In addition, Indermuhle et al disclose placing chemical moieties on the substrate so as to provide features thereon along rows more closely aligned with the first direction than the second direction (e.g., see Indermuhle et al, figure 24, wherein element 133 is used to “dispense” chemical on the top of the elongated pillars that are parallel i.e., closely aligned to the first direction; see also page 2, column 2, paragraph 44 which discloses numerous chemical moieties that can be deposited on the pillar e.g., antibody/antigen, enzyme/substrate, etc.). Finally, Indermuhle et al disclose the fabrication of an array of multiple features of different chemical moieties on the substrate surface (e.g., see Indermuhle et al, figure 24 disclosing the array of pillars on the surface wherein various

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chemicals are spotted on said surface; see also page 2, column 2, paragraph 44; see also figures 2-4; see also page 3, column 2, paragraph 55).

For *claim 5*, Indermuhle et al also disclose additionally associating with the array an identification as to the direction of the rows and forwarding the array and associated identification to a remote location (e.g., see figure 24, wherein the identification of the direction of the rows is forwarded to the remote location of the dispenser chip so that the two chips can be properly aligned).

For *claims 6-7*, Indermuhle et al disclose "aligning" the hosing for the substrate, which may include a wide variety of different dispenser known in the industry (e.g., see page 8, column 2, paragraphs 94-97). Indermuhle et al further disclose the use of alignment marks or pins (e.g., see page 9, column 2, paragraph 104).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon D Epperson whose telephone number is (703) 308-2423. The examiner can normally be reached Monday-Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (703) 306-3217. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

Jon D. Epperson, Ph.D.
December 30, 2003

